Periscope.

a.—ANATOMY OF THE NERVOUS SYSTEM.

THE WEIGHT OF THE BRAIN.—Buchstab, under the direction of Prof. Lesshaft of St. Petersburg, has recently published (Inaugural Diss., St. Petersburg, 1884) the result of a series of observations upon the weight and size of the brain. He reaches the following averages, 239 brains having been measured. The weight of the entire average male brain is 1370.9 grm.; of which the hemispheres weigh 1194.1; the cerebellum 150.8; the medulla and pons, 26. The average female brain weighs 1229; hemispheres, 1009.9; cerebellum, 135.1; pons and medulla, 24. He finds that during the first twelve years of life the brain weight increases threefold. It reaches its maximum between the sixteenth and twentieth years. The length of the brain is 172.3 mm. in males; 167.5 mm. in females. The breadth is 141.5 mm. in males; 135.7 mm. in females. The height is 81.9 mm. in males; 78.2 mm. in females. The distance between the apex of the frontal lobe and the upper end of the fissure of Rolando is 152.9 mm. in males and 140.6 in females. The distance between the apex of the occipital lobe and the upper end of the parieto-occipital fissure is 48.7 mm. in males, and 51.4 in females.

These figures are of interest when they are compared with those collected by Schwalbe from a large number of German authorities, since they indicate that the average Russian male brain weighs 4.1 grm. less than the average German male brain, and the average Russian female brain weighs 16 grm. less than the German. The Russian brain is also lighter than the English brain but is heavier than the French or Italian brain. The statement of Schwalbe that Germanic and Sclavonic races surpass the Latin race in brain weight is therefore confirmed by Buchstab.

The measurement of distances between the apices and fissures in the two sexes has not been made before. The statements here reproduced should be submitted to further investigation. The relatively large size of the occipital lobes in the female is important, and must be taken into account in any attempt to map out on the skull the position of the fissures.

THE CEREBELLAR PEDUNCLES AND THE COURSE OF THE FUNICULI GRACILES AND CUNEATI.—Vejas of Corfu has investigated, in the laboratory of Prof. Forel, in Zurich, the anatomy of the cerebellar peduncles, following the method of Gudden.

1. He extirpated the right funiculi graciles and cuneati in a rabbit, and examined the result seventy-four days after the operation. He found an atrophy of the posterior columns of the cord on the side of the operation downward to the upper dorsal region. Above the lesion the fibræ arcuatæ of the right funiculi were greatly reduced in size, as was also the inner division of the right inferior cerebellar peduncle with the cells which it contains. The only atrophy upon the left side was found in the interolivary tract, and this could only be followed as high as the corpus trapezoides. The olives, and Deiter's nucleus, and the corpus restiforme were not affected. He concludes that the inner division of the inferior peduncle of the cerebellum derives its fibres chiefly from the funiculus cuneatus of the same side through the formatio reticularis. These fibres do not pass through the corpus restiforme as Monakow supposed. They end in the ganglion tecti and not in the cerebellar hemispheres. The interolivary tract derives its fibres chiefly from the funiculi graciles of the opposite side.

2. He extirpated the right hemisphere of the cerebellum, including the dentate nucleus and the flocculus, and a portion of the right half of the vermiform lobe, in a rat. Fifty-two days after the operation the following changes were found. The right corpus restiforme, the right nucleus of Clarke (nucleus of the lateral column), and the left olive were greatly atrophied. The right superior peduncle of the cerebellum and the left red nucleus were atrophied. The right middle peduncle of the cerebellum (right superficial half of pons) was totally atrophied, and its gray mass reduced in size, but no change was found in the cerebral peduncles. Thalami normal.

3. He extirpated a portion only of the right cerebellum in a rabbit, viz., the flocculus, and the right middle peduncle with the accompanying portions of the nucleus dentatus. The vermiform lobe and ganglion tecti were not injured. Seventy-two days after the operation the brain was examined. The corpus restiforme and olive were not affected. The inner division of the inferior peduncle was preserved. The atrophy was confined to the superior and middle peduncles of the cerebellum on the right side, and to the red nucleus on the left side, but was less extensive than in the first case.

From these results the following conclusions are drawn: the corpus restiforme is made up (*a*) of the direct cerebellar column from the cord, (*b*) of the tract from the olive of the opposite side, (*c*) of a mass of fibres which come from the nucleus of the lateral column which lies in the formatio reticularis. It does not contain any fibres from the posterior columns of the cord or their funiculi. Its ending is not known, but it does not decussate with

the opposite corpus restiforme in the cerebellum. The inner division of the inferior peduncle is independent of the corpus restiforme, and is made up chiefly of fibres from the nucleus cuneatus of the same side. It also receives some fibres from the formatio reticularis. It ends in the ganglion tecti and possibly decussates within the cerebellum. The superior cerebellar peduncle arises from all parts of the cerebellar cortex but not from the vermiform lobe. It ends in the red nucleus of the opposite side. The middle peduncle of the cerebellum does not contain any commissural fibres between the cerebellar hemispheres. It arises from all parts of the cerebellum. It passes to the gray masses in the ventrad half of the pons, each hemisphere being joined with both halves of the pons. A part only of the fibres, therefore, cross the median line. The fibres end in the gray masses of the pons. There is no direct connection between the cerebellum and cerebrum. All the fibres from one end in nuclei, whence new fibres leave to pass to the other. These way stations are the gray masses of the pons and the red nucleus of the tegmentum.

The results of the author are compared with those of other observers in the original article, which is to be found in the *Arch. für Psychiatrie*, xvi., p. 200.

THE DESTINATION OF THE POSTERIOR COLUMNS OF THE CORD.—Edinger has investigated the course of the fibres from the posterior columns of the spinal cord upward into the medulla oblongata in fœtuses at the eighth month. At that time these fibres are medullated, while the fibres from the olivary bodies are still without sheaths; hence the two sets can be distinguished from each other. He finds that the fibres from the columns of Burdach and Goll take two courses. The greater number pass ventrad of the central canal and cross to the opposite side to form the interolivary tract. This decussation, known as the sensory, to distinguish it from the pyramidal or motor, continues higher than is usually described, the last fibres to cross passing from the termination of the posterior columns as high as the middle of the vagus nucleus. These upper fibres form a portion of the fibræ arcuatæ internæ which go through the formatio reticularis. They pass through the olivary body of the side from which they come, but do not enter into any relation with it. The olivary body is not connected with the posterior columns. The smaller number of fibres turn directly outward from the termination of the posterior columns and enter the restiforme body, and thus go to the cerebellum. They come exclusively from the column of Goll. They pass to the vermiform lobe of the cerebellum, being joined on their way by fibres which arise in the acoustic and trigeminal nuclei, and by the direct cerebellar column of the cord. The fibres which come from the opposite olivary body into the corpus restiforme pass to the hemispheres of the cerebellum and not to the vermiform lobe.—*Neurolog. centralbl.*, Feb. 15, 1885.